

Automated Contingency Management for Advanced Propulsion Systems, Phase II

Completed Technology Project (2005 - 2007)



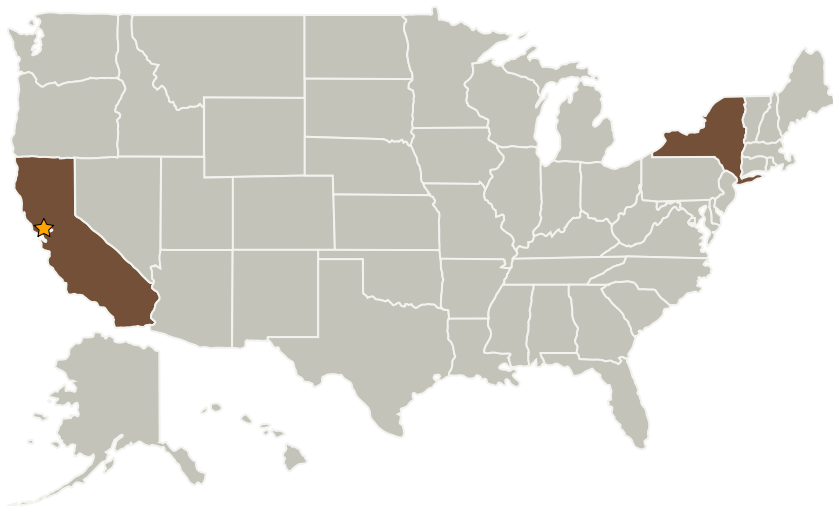
Project Introduction

Automated Contingency Management (ACM), or the ability to confidently and autonomously adapt to fault conditions with the goal of still achieving mission objectives, can be considered the ultimate technological goal of a health management system. In an innovative Phase I STTR program, Impact Technologies and Georgia Institute of Technology developed a prototype Test Bench software for developing and validating ACM systems. With the Phase II support of Boeing/Rocketdyne, the primary goal of this project is to further develop and demonstrate a design and development tool for ACM technologies called the Propulsion ACM Test Bench, and to develop specific ACM solutions within this environment for Space Shuttle Main Engine (SSME). The commercial-grade software to be delivered at the conclusion of Phase II will utilize technologies based on open-systems, modular software architectures suitable for 3rd party system integration. Two such modules of note for the Test Bench include an Integration Toolkit for Livingstone2

TM

as a Reasoner and a Validation and Verification Toolkit for health management algorithms and the ACM system design. This technology is expected to provide immediate benefit to the SSME program and a comprehensive, SSME software demonstration is planned at the conclusion of the 2 year effort.

Primary U.S. Work Locations and Key Partners



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Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Impact Technologies, LLC	Supporting Organization	Industry	Rochester, New York

Primary U.S. Work Locations

California	New York
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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX07 Exploration Destination Systems
 - └ TX07.2 Mission Infrastructure, Sustainability, and Supportability
 - └ TX07.2.1 Logistics Management